

In the Claims:

Please amend the Claims as follows and without prejudice. This listing of Claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (CURRENTLY AMENDED) A miniature reaction chamber template structure for fabrication of nanoscale molecular systems and devices, comprising:

a first wafer of silicon,

a layer of ~~Pyrex~~ borosilicate glass having oxygen ions at a surface thereof and being at least substantially adjacent to ~~deposited on~~ said wafer of silicon to form a composite structure, and

a plurality of channels located between said glass and silicon interface and providing an inlet opening for said channels at one end of said structure and an outlet opening for said channels at another end of said structure to enable the insertion of a fluid containing organic molecules in said channels.

2. (ORIGINAL) The miniature reaction chamber according to claim 1 wherein said channels are located longitudinal to said structure and directed from a first side to a second side in the X direction.

3. (ORIGINAL) The miniature reaction chamber according to claim 2 where in there are additional channels located in the Y direction and which are transverse to the X direction channels.

4. (CURRENTLY AMENDED) The miniature reaction chamber according to claim 1 further including a second wafer of silicon ~~bonded~~ at least substantially adjacent to said Pyrex borosilicate glass layer to form a laminar structure having a top layer of silicon, a middle layer of Pyrex borosilicate glass and a bottom layer of silicon.
5. (ORIGINAL) The miniature reaction chamber according to claim 1 wherein said channels are circular in cross section.
6. (ORIGINAL) The miniature reaction chamber according to claim 1 wherein said channels are rectangular in cross section.
7. (CURRENTLY AMENDED) The miniature reaction chamber according to claim 1 wherein said Pyrex borosilicate glass is deposited ~~[[in]]~~ on said second silicon wafer.
8. (CURRENTLY AMENDED) The miniature reaction chamber according to claim 1 wherein said Pyrex borosilicate glass is joined to said first silicon wafer by a field assisted bond.
9. (CURRENTLY AMENDED) The miniature reaction chamber according to claim 8 wherein said field assisted bond creates said oxygen ions in the Pyrex borosilicate glass.

10. (ORIGINAL) The miniature reaction chamber according to claim 4 further including vertical conduits located in said top layer of silicon and in communication with said channels to enable a fluid to be introduced into said channels.

11. (ORIGINAL) The miniature reaction chamber according to claim 10 further including localized reaction areas positioned in said channels and capable of producing a high electric field wherein a voltage is applied to said structure.

12. (ORIGINAL) The miniature reaction chamber according to claim 1 wherein said channels include a metallized layer area.

13. (ORIGINAL) The miniature reaction chamber according to claim 1 wherein said channels are between 1 to 10 mils in diameter.

14. (ORIGINAL) The miniature reaction chamber according to claim 1 wherein said silicon is doped silicon.

15. (ORIGINAL) The miniature reaction chamber according to claim 1 wherein said silicon is intrinsic silicon.

16. (ORIGINAL) The miniature reaction chamber according to claim 1 wherein said silicon wafer is coated with silicon dioxide.

17. (CURRENTLY AMENDED) The miniature reaction chamber according to claim 12 wherein said metal is selected from aluminum or gold.

18. (NEW) An apparatus for fabricating nanoscale molecular systems, comprising:
at least one silicon wafer;
a layer of borosilicate glass being substantially adjacent to said silicon wafer to define a plurality of channels between said borosilicate glass and silicon wafer, said borosilicate glass having dangling bonds at predetermined localized reaction sites; and,
at least one inlet opening for said channels for enabling the insertion of a fluid containing organic molecules into said channels.

19. (NEW) The apparatus of Claim 18, wherein said dangling bonds are associated with oxygen ions.

20. (NEW) An apparatus for fabricating nanoscale molecular systems, comprising:
at least one silicon wafer;
a layer of borosilicate glass being substantially adjacent to said silicon wafer to define a plurality of channels between said borosilicate glass and silicon wafer;
at least one inlet opening for said channels for enabling the insertion of a fluid containing organic molecules into said channels; and,
at least one edge protruding into at least one of said channels and being suitable for inducing a localized high electric field.